BRUHATH BANGALORE MAHANAGARA PALIKE

Name of the Agency	:	**Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
Name of the Work	:	Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
Estimate Cost	:	Rs.

QUALITY CONTROL REPORTS TO

Asst. Executive Engineer,
Vidyaranyapura Sub Division,
BBMP, Bangalore.

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Basaveshwaranagar, Bangalore – 560 079.

QUALITY CONTROL REPORTS FOR

CIVIL WORKS

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T-2377

Job No.: CTCE/BBMP/W.No.09/BG/CSR-02/758b/CEMENT/2014-15 Date: 09.02.2015

TEST REPORT ON CEMENT

* CUSTOMER	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
*AGENCY	:	**Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
*NAME OF THE WORK	:	Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
*REFERENCE	:	EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
SAMPLE ID	:	Cement
SAMPLE RECEIVED ON	:	06.02.2015
PERIOD OF TESTING	:	06.02.2015 to 09.02.2015

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1988(RA-2009)	28.00 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988(RA-2009)	155 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1988(RA-2009)	480 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) 1988(RA-2009)	1 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

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⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

VISHWANATH .C .
Quality Manager

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T-2377

Job No.: CTCE/BBMP/W.No.09/BG/CSR-02/758b/SAND-Gradation/2014-15 : 09.02.2015

TEST REPORT ON DETERMINATION GRADATION OF FINE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. B. Girish,**
#227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.

*** Name of Work** : Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015

Technical Reference : IS : 2386 Part 1 - 1963 RA-2007

Sample ID : Fine Aggregates

Sample Received on : 06.02.2015

Date of Testing : 09.02.2015

Total Wt. of Aggregates in gms **1000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	94.00	90-100	90-100	90-100	95-100
2.36	76.00	60-95	75-100	85-100	95-100
1.18	54.50	30-70	55-90	75-100	90-100
600 Micron	26.00	15-34	35-59	60-79	80-100
300 Micron	13.00	5-20	8-30	12-40	15-50
150 Micron	6.10	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

Remarks : This sample is under Zone-I specific limits.

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Job No.: CTCE/BBMP/W.No.09/BG/CSR-02/758b/AGG/GR/2014-15 : 09.02.2015

TEST REPORT ON DETERMINATION GRADATION OF COARSE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. B. Girish,**
#227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.

*** Name of Work** : Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015

Technical Reference : IS : 2386 Part 1 -1963 RA-2007

Sample ID : Coarse Aggregates (40mm)

Sample Received on : 06.02.2015

Date of Testing : 09.02.2015

Total Wt. of Aggregates in gms= **10000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)	
		Graded	Single Sized
80	100	100	-
63	100	-	100
40	97.45	95-100	85-100
20	44.50	30-70	0-20
10	21.45	10-35	0-5
4.75	3.45	0-5	-

* Information is furnished by the Customer/Representative

Remarks : This sample is under Graded specific limits.

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Job No.: CTCE/BBMP/W.No.09/BG/STEEL/2014-15 12.02.2015

TEST REPORT ON REINFORCEMENT STEEL

Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	:	**Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore – 560 082.
Name of the Work	:	Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	:	EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
Date of Test	:	12.02.2015
Technical Reference	:	IS: 1786-2008

Sl. No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm^2	Tensile strength (Ultimate stress) N/mm^2	Elongation percent gauge length		
1	8	0.40	510	552	13.10	O.K	O.K

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Job No.: CTCE/BBMP/W.No.09/BG/STEEL/2014-15 12.02.2015

TEST REPORT ON REINFORCEMENT STEEL

Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	:	**Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore – 560 082.
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Reference	:	EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
Date of Test	:	12.02.2015
Technical Reference	:	IS: 1786-2008

Sl. No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm^2	Tensile strength (Ultimate stress) N/mm^2	Elongation percent gauge length		
1	10	0.62	514	557	13.30	O.K	O.K

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T-2377

Job No.: CTCE/BBMP/W.No.09/BG/CSR-02/758b/CUBE/2014-15 23.03.2015

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

***Customer** : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

***Agency** : **Mr. B. Girish,**
#227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.

***Name of the work** : Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.

***Reference** : EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015

Sample ID : Cement Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

*** Grade of Concrete** : M_{20}

Compressive Strength as on : 28th day

Sample Received on : 23.03.2015

Sl.No.	*Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	23.02.2015	23.03.2015	8.125	478.3	21.26
2	23.02.2015	23.03.2015	8.256	492.3	21.88
3	23.02.2015	23.03.2015	8.325	512.4	22.77

*Information is furnished by the Customer/Representative.

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T-2377

Job No.: CTCE/BBMP/W.No.09/BG/CSR-02/758b/CUBE/2014-15 24.03.2015

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

***Customer**	: **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
***Agency**	: **Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
***Name of the work**	: Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
***Reference**	: EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
Sample ID	: Cement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
*** Grade of Concrete**	: M_{20}
Compressive Strength as on	: 28th day
Sample Received on	: 24.03.2015

Sl.No.	*Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	24.02.2015	24.03.2015	8.110	482.3	21.44
2	24.02.2015	24.03.2015	8.289	498.8	22.17
3	24.02.2015	24.03.2015	8.335	523.6	23.27

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/W.No.09/BG/CSR-02/758b/CUBE/2014-15 26.03.2015

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

***Customer**	: **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
***Agency**	: **Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
***Name of the work**	: Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
***Reference**	: EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
Sample ID	: Cement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
*** Grade of Concrete**	: M_{20}
Compressive Strength as on	: 28th day
Sample Received on	: 26.03.2015

Sl.No.	*Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	26.02.2015	26.03.2015	8.125	480.9	21.37
2	26.02.2015	26.03.2015	8.238	502.3	22.32
3	26.02.2015	26.03.2015	8.375	518.3	23.04

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Job No.: CTCE/BBMP/W.No.09/BG/CSR-02/758b/CUBE/2014-15 27.03.2015

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

***Customer**	: **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
***Agency**	: **Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
***Name of the work**	: Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
***Reference**	: EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
Sample ID	: Cement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
*** Grade of Concrete**	: M_{20}
Compressive Strength as on	: 28th day
Sample Received on	: 27.03.2015

Sl.No.	*Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	27.02.2015	27.03.2015	8.110	475.5	21.13
2	27.02.2015	27.03.2015	8.260	503.6	22.38
3	27.02.2015	27.03.2015	8.398	526.3	23.39

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Job No.: CTCE/BBMP/W.No.09/BG/CSR-02/758b/CUBE/2014-15 21.03.2015

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

***Customer** : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

***Agency** : **Mr. B. Girish,**
#227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.

***Name of the work** : Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.

***Reference** : EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015

Sample ID : Cement Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

*** Grade of Concrete** : M_{15}

Compressive Strength as on : 28th day

Sample Received on : 27.03.2015

Sl.No.	*Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	21.02.2015	21.03.2015	8.286	356.3	15.84
2	21.02.2015	21.03.2015	8.335	363.5	16.16
3	21.02.2015	21.03.2015	8.482	376.3	16.72

*Information is furnished by the Customer/Representative.

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QUALITY CONTROL REPORTS FOR

WET MIX MACADAM(WMM)

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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.09/BG/WMM/Gradation/2014-15

05.03.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Mr. B. Girish,**
#227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.

Name of Work : Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015

Date of Testing : 05.03.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **8400**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	165	165	2.0	98.0	95-100
22.4	2685	2850	33.9	66.1	60-80
11.2	1425	4275	50.9	49.1	40-60
4.75	1305	5580	66.4	33.6	25-40
2.36	1050	6630	78.9	21.1	15-30
0.600	790	7420	88.3	11.7	8-22
0.075	700	8120	96.7	3.3	0-8

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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.09/BG/WMM/AIV/2014-15 05.03.2015

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
Name of the Work	Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	05.03.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	389	390	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	88	89	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines	22.62	22.82	
	100* (W_2/W_1)%			22.72

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

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Job No.: CTCE/BBMP/W.No.09/BG/WMM/S-T/2014-15 05.03.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
Name of Work	Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	05.03.2015

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.29%**

Elongation Index = **13.69%**

Result : Combined Flakiness & Elongation index 24.98%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

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QUALITY CONTROL REPORTS FOR

SEMI DENSE BITUMINOUS CONCRETE

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Job No.: CTCE/BBMP/W.No.09/BG/CSR-02/758b/QB(SDBC)/2014-15 10.03.2015

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

*CUSTOMER	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
*AGENCY	:	**Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
*NAME OF THE WORK	:	Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	:	EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
*SAMPLE ID	:	Bitumen
DATE OF SAMPLING	:	08.03.2015
DATE OF TESTING	:	10.03.2015

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	82	80 to 100
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	46	Min. 40
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 75
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	298	Min. 220

*Information is furnished by the Customer/Representative.

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VISHWANATH .C
Quality Manager

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Job No.: CTCE/BBMP/W.No.09/BG/SDBC/AIV/2014-15 10.03.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
Name of the Work	Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	10.03.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	383	384	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	83	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.41	21.61	21.51

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/W.No.09/BG/SDBC/Shape_T/2014-15 : 10.03.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	: **Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
Name of Work	: Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	: EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 10.03.2015

Result : Flakiness Index = **11.98%**

Elongation Index = **13.69%**

Result : Combined Flakiness & Elongation index **25.67%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/W.No.09/BG/SDBC/Stripping/2014-15 12.03.2015

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
Name of the work	Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	12.03.2015

Type of binder : 80/100
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.6	3.50	96.50
2	3.5		
3	3.4		

Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/W.No.09/BG/SDBC/Sp_Wa/2014-15

12.03.2015

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
Name of the Work	Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	12.03.2015

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2010	2012	2013	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1255	1257	1258	
4	Weight of saturated surface dry aggregate in air	W_3 g	2020	2021	2022	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	765	764	764	
6	Weight of oven dried aggregate	W_4 g	2018	1996	1999	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.638	2.613	2.616	2.622
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.645	2.701	2.698	2.681
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.10%	1.25%	1.15%	0.83%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

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Job No.: CTCE/BBMP/W.No.09/BG/SDBC/Bit/2014-15 12.03.2015

BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC:SP:-1984

CUSTOMER	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
NAME OF THE WORK	Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
SAMPLE I/D	Veerabhadraswamy temple road, Ward No.09.
DATE OF TESTING	12.03.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	26.00
7. Bitumen content in %	5.00	5.20
8. Average	**5.10**	

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Job No.: CTCE/BBMP/W.No.09/BG/SDBC/Bit/2014-15 12.03.2015

BITUMEN CONTENT GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
NAME OF THE WORK	Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
SAMPLE I/D	Veerabhadraswamy temple road, Ward No.09.
DATE OF TESTING	12.03.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	26.35	5.55	5.55	94.45	90-100
4.75	259.3	54.59	60.14	39.86	35-51
2.36	53.62	11.29	71.43	28.57	24-39
1.18	36.32	7.65	79.07	20.93	15-30
0.3	35.26	7.42	86.49	13.51	9-19
0.075	40.25	8.47	94.97	5.03	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	40.22	8.49	8.49	91.51	90-100
4.75	259.8	54.81	63.30	36.70	35-51
2.36	35.65	7.52	70.82	29.18	24-39
1.18	36.69	7.74	78.56	21.44	15-30
0.3	32.21	6.80	85.35	14.65	9-19
0.075	40.22	8.49	93.84	6.16	3-8

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Job No.: CTCE/BBMP/W.No.09/BG/SDBC/AGG/2014-15 12.03.2015

Aggregate Gradation Test

IS : 2386 Part I

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B. Girish,** #227, 32 'A' Cross, 7th Block, Jayanagar, Bangalore - 560 082.
Name of the Work	Construction of concrete roads in Thindlu Veerabhadraswamy temple road in Ward No.09 of Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/298/2014-15 Dated: 06.02.2015
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	12.03.2015

Total Weight of Sample: **5100** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	290	5.7	5.69	94.31	90-100	
4.75	2505	49.1	54.80	45.20	35-51	
2.36	750	14.7	69.51	30.49	24-39	
1.18	625	12.3	81.76	18.24	15-30	
0.3	370	7.3	89.02	10.98	9-19	
0.075	300	5.9	94.90	5.10	3-8	

Total Weight of Sample: **5200** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	325	6.3	6.25	93.75	90-100	
4.75	2595	49.9	56.15	43.85	35-51	
2.36	670	12.9	69.04	30.96	24-39	
1.18	480	9.2	78.27	21.73	15-30	
0.3	350	6.7	85.00	15.00	9-19	
0.075	450	8.7	93.65	6.35	3-8	

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